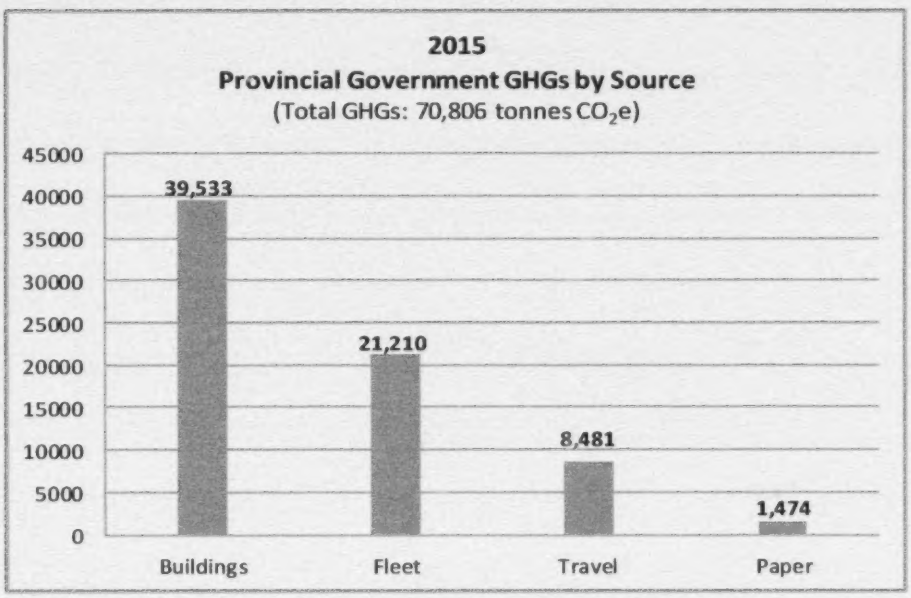
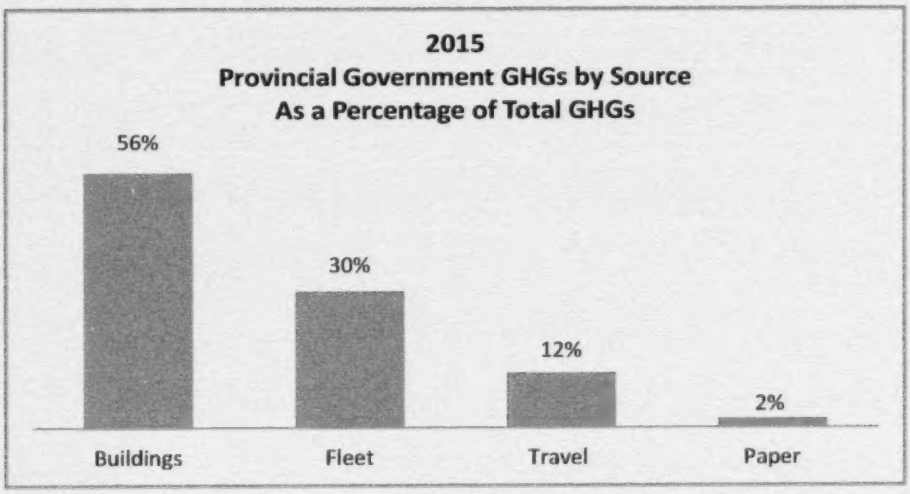
Carbon Neutral Action Report for Provincial Government, 2015

This report fulfills the British Columbia (B.C.) provincial government's reporting requirements under the Greenhouse Gas Reduction Targets Act. The Act defines the provincial government as comprising the Province's ministries and special offices. In accordance with the Act's requirements and for the 2015 calendar year, this report provides an overview of provincial government's:

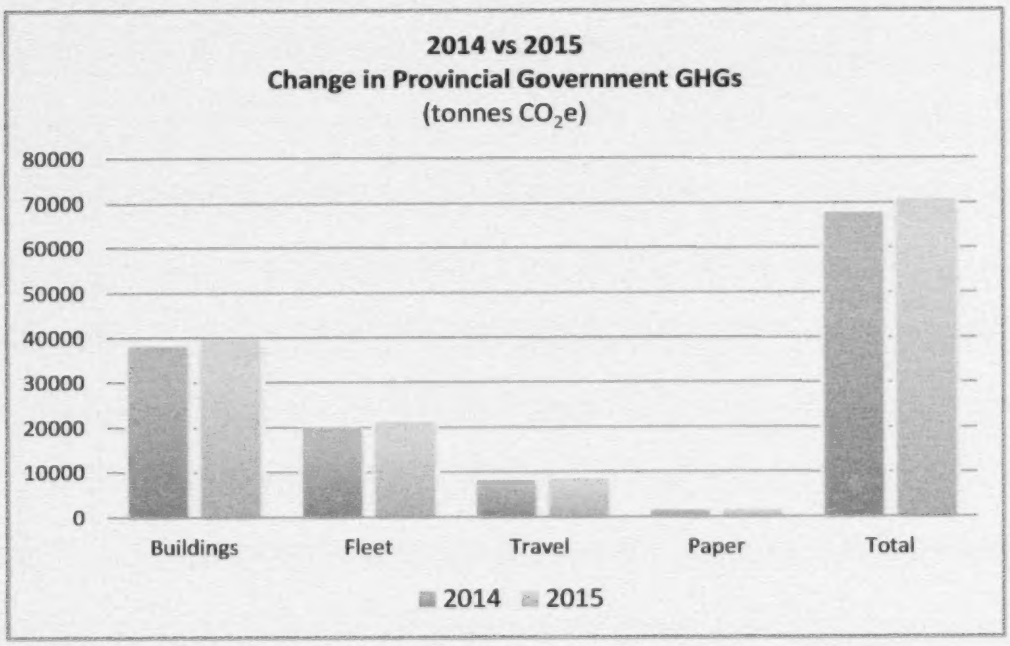
- greenhouse gas emissions (GHGs),
- the offsets retired in relation to those emissions, as well as
- highlights of plans and actions taken in 2015 to minimize emissions.

GHGs Summary 2014/2015		
	2014	2015
Total Emissions (tonnes CO_2e)	67,720	70,806
Total Offsets (tonnes CO_2e) Retired	66,965	69,939
Total Value of Offsets Retired	$1,674,125	$1,748,475





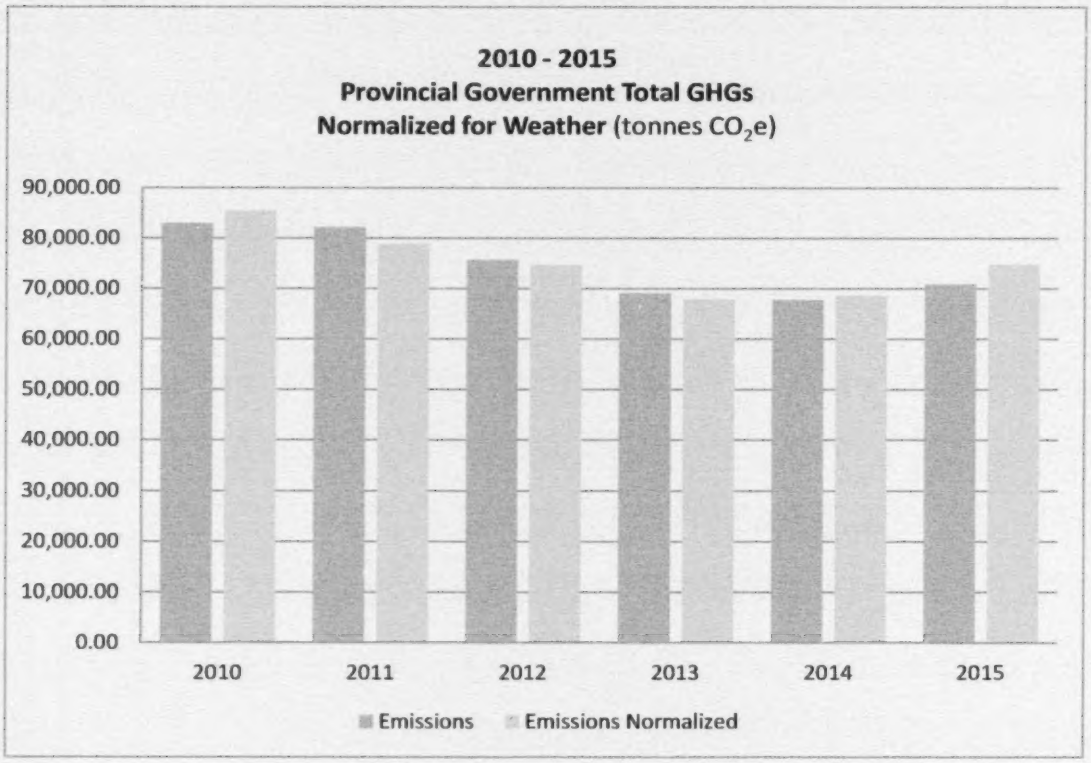
Provincial government emissions rose slightly in 2015 (4.6%) from 2014 levels. However, the overall distribution of emissions between sources has remained relatively consistent with previous years. Emissions from buildings remain the largest source followed by fleet vehicles. Travel and paper consumption emissions make up the remainder.



Provincial government emissions for 2015 show a slight increase from 2014 levels, due primarily to small increases in building, fleet and travel emissions while emissions from office paper consumption saw a very slight decrease.

Weather Normalized Emissions

56% of provincial government emissions come from energy used in buildings, largely for heating. In order to improve the comparability of annual emissions data from 2010 to 2015, building emissions are "weather normalized" to remove the effects of weather to better isolate consumption and emissions differences attributable to building performance. This approach is based on using a 30 year average temperature (from Environment Canada) and a baseline of 15°C for commercial/institutional buildings.



Weather normalized emissions for 2015 exhibited an increase over 2014 levels, while the overall trend remains downward.

Highlights from Provincial Government – Actions taken by Ministries and Agencies in 2015

1. Office of the Auditor General of B.C.

In August 2015, the Office of the Auditor General was successful in obtaining LEED (Leadership in Energy and Environmental Design) Gold Commercial Interior Certification for its premises at 623 Fort Street. The Office received 34 points and required a minimum of 32 points for this level of certification.

LEED® Canada for Commercial Interiors is the green benchmark for the tenant improvement market. It is the recognized system for certifying high-performance green interiors that are healthy, productive places to work; are less costly to operate and maintain; and have a reduced environmental footprint.

2. Ministry of Community, Sport and Cultural Development (CSCD)

As the leaseholder of the Mazda Building at 800 Johnson St. in Victoria, CSCD works with the landlord to implement building improvements and operational changes that lead to reduced environmental impacts of building operations. In 2015 this work has continued:

- HVAC pumps at the end of their life have been replaced with enhanced efficiency heat pumps.
- Lighting requiring replacement is replaced with LED lighting with a longer lifespan and less energy consumption.
- Building elevators were replaced in 2015 with more energy efficient models.

CSCD continues to promote employee awareness for reducing GHG emissions through activities such as:

- Use of virtual meeting technology
- Onsite recycling and solid waste management programs
- Taking part in sponsored initiatives such as Bike to Work Week, Hibernation Challenge and Earth Day

3. Ministry of Education

- Staff participation in government-wide initiatives such as the Hibernation Challenge and Bike to Work week
- Implementation of E-signatures and the Lean Cellular Billing Process which eliminated the need to print over 700 pages per month or over 8,000 pages per year

4. **Ministry of Justice and Attorney General**

- Staff have continued to participate in campaigns such as battery recycling, Bike to Work Week and the coffee cup challenge
- Extensive use of video-conferencing has decreased the need for travel by prisoners, witnesses, the Crown and judiciary
- All new buildings are being constructed to LEED Gold standards
- In collaboration with Shared Services BC, all current buildings will be upgraded with energy efficient lighting, appliances and heating as funding permits
- 360 pounds of batteries were recycled in 2015

5. **Ministry of Children and Family Development**

- As of February 2015, all offices now have video conferencing equipment to enable better communication with clients and reduce travel needs
- In 2015 34 fuel efficient vehicles were purchased to replace fleet vehicles nearing their end of life

Within the Ministry, carbon footprint reducing initiatives that are undertaken across all of government are promoted such as:

- Managed Print Services (replacement of current printers with new printers incorporated "smart" technology) which use less power and conserve paper. This is expected to reduce paper consumption across government by at least 10%
- Solid Waste Management (addition of composting and enhanced recycling services) which reduces GHG emission compared to sending waste directly to a landfill

In 2016 and future years the Ministry intends to implement Leading Workplace Strategies (LWS) in Victoria (350 staff), Kelowna (200 staff) and Vancouver (45 staff). LWS results in more efficient use of space thus reducing the building footprint and associated energy consumption.

6. Ministry of Energy and Mines (MEM)

The Ministry of Energy and Mines has made efforts to reduce travel through teleconferencing and reduce electricity consumption through conservation efforts. One area the Ministry has made special efforts in is waste reduction. Initiatives in this area in 2015 include:

- MEM Intranet was utilized for most ministry-wide communications, to limit the number of posters being printed
- All printers default to double sided, black and white
- Electronic approvals were utilized, to prevent printing
- Executive use electronic binders whenever possible (e.g., Estimates, annual conferences)
- Ministry events did not use disposable plates and cutlery, instead requesting that all staff bring their own plates
- Comprehensive recycling and composting throughout buildings
- Majority of meetings and events were green as per the Green Meeting Guide
- All event catering is done using local vendors
- Office supplies are purchased only as needed, not overstocked

7. Ministry of Small Business, Red Tape Reduction and Responsible for Liquor Distribution Branch

A newly formed ministry in 2015, the Ministry of Small Business and Red Tape Reduction branches were formerly from parts of the Ministries of Jobs, Tourism and Skills Training and the Ministry of Justice. This new ministry undertook the following actions in 2015:

- Encouraged staff to use virtual meeting technology as an alternative to travel
- Implemented the Managed Print Service in summer 2015 which reduces paper consumption by queuing print jobs and deleting them after 24 hours if not printed
- Launched a pilot for Inspectors to use a Surface tablet which enables them to update their case files while out in the field rather than return to the office
- Executive members opted for Surface Pro assets, enabling viewing of documents electronically rather than printing them for meetings.

8. Ministry of Transportation (MoT)

- Plans are underway to replace all remaining Ministry pickup trucks with small sport utility vehicles in 2017. Twenty half and three-quarter tonne trucks were replaced with smaller Toyota Tacoma vehicles in 2014.
- MoT provides financial support to the Bike to Work Week society which runs a very successful Bike To Work Week event each year, raising awareness of the benefits of cycling to and from work.

9. Ministry of Technology, Innovation and Citizens' Services (MTICS)

Shared Services BC, (SSBC) within the Ministry of Technology, Information and Citizens' Services undertakes a number of initiatives on behalf of all of provincial government. SSBC manages most provincial government buildings, fleets and oversees major functions such as procurement, print services and information technology. As such, SSBC is well positioned to take actions that result in reduced GHG emissions on behalf of all provincial government. The following is a summary of key initiatives taken by SSBC in 2015.

Routine Capital

The Routine Capital Program includes energy efficiency projects done to government-owned infrastructure. Energy savings are estimated in dollars and greenhouse gas emissions reduction to inform investment decisions. Some of the projects implemented in 2015 include:

- Provincial Court Facilities-222 Main: Replacement of exterior lighting to LED
- Burnaby Youth Custody Services: Repair of the building envelope
- Kelowna Law Courts: Roof replacement
- Prince George Correction Centre: Chiller upgrade

All new public sector buildings are built to the LEED Gold level of certification requiring them to take into account both energy consumption and overall environmental/sustainability considerations when designing and constructing new buildings.

- The Okanagan Correctional Centre is a new building to be completed in 2016 and is pending LEED Gold certification.

LEED projects currently under construction as purpose-built for government facilities:

- Valleyview, LEED Gold: substantial completion expected Spring 2019
- Capital Park, LEED Platinum: Office Building A-1 Phase One substantial completion expected fall 2017

Behaviour Initiatives

Behaviour campaigns are designed to encourage 25,000 public service staff to reduce energy use within our owned and leased buildings throughout the province, including the Stay Cool Challenge (in the summer) and the Hibernation Challenge (in the winter). These campaigns encourage staff to discover and commit to energy conservations behaviours in the workplace.

In 2015 both the Stay Cool Challenge and Hibernation Challenge significantly increased staff engagement. Within the official Stay Cool Challenge contest we received 142 separate entries, roughly the same as 2014. However, the entries this year were largely of a very different quality and the vast majority of them were submissions of photos, as opposed to those submitted in 2014, where the vast majority were a simple blog comment. Eleven ministries participated in 12 cities across the province, occupying 39 different buildings.

In 2015 there were a total of 1,331 pledges for the Hibernation Challenge - the number of pledges exceeded 2014's number of pledges by 22 percent government-wide. This shows the level of engagement of staff across all ministries.

BC Hydro estimates the emissions reduction from these activities was approximately 1,590 megawatt hours in 2015.

Operations Initiatives:

Since November 2014 through 2015, and with the support of the Real Property division of SSBC, a centralized management team of technical experts in direct digital controls (DDC) from our outsourced service provider Brookfield Global Integrated Solutions - WCI championed energy efficiency in several government buildings. This team provides centralized oversight of building controls for optimal operations. The team interfaces with the field operators to continually calibrate the building systems and establish optimal performance and efficiency, providing energy savings and cost reductions. Some of the activities performed by the DDC team include:

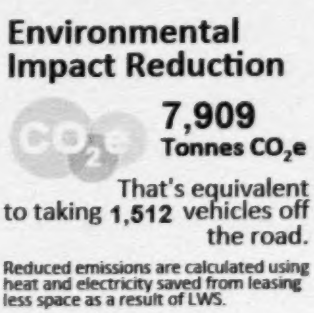
- Mini Commissioning based on tenant satisfaction surveys, HVAC zone verification and labelling, optimize and standardized programming
- Remote access to building management system information to initially and immediately address "too hot, too cold" concerns
- Deep review of building operations with on-site operators to develop strategies for optimization, including:
    - Setting calibration (e.g. outdoor air sensors and dampers for smaller sites, mixed air and supply air sensors)
    - Summer shutdown, turning off boilers as early as possible in shoulder season and otherwise reducing runtime
    - Adjustment of settings and calibration of equipment to maximize the effectiveness of heating, ventilation and air conditioning
    - Recording changes in operations records and as-built drawings

Results associated with DDU team activities include:

Summary of Results	
43	Number of buildings optimized
4,800	Estimated energy savings in Giga Joules
$200,000	Estimated costs savings
8.0%	Average estimated performance improvement per building
500	tCO2e total reduction

Programming Initiatives

The two key MTICS programs that have reduced carbon emissions in SSBC's overall building portfolio most significantly in 2015 are Leading Workplace Strategies and Managed Print Services.


Environmental Impact Reduction
7,909
Tonnes CO_2e
That's equivalent to taking 1,512 vehicles off the road.
Reduced emissions are calculated using heat and electricity saved from leasing less space as a result of LWS.

Leading Workplace Strategies (LWS)

LWS rationalizes the amount of office space required by tailoring interior space designs to support the varied workstyles within work groups. LWS is often characterized by smaller workstations that support mobility for staff, reducing overall space needs. The BC government implemented LWS in 2011. The initiative has not only led to reduced leased office space requirements, it has also contributed to an accumulated reduction of an estimated 7,909 tonnes CO_2e of GHGs. The impact of LWS lease reductions in 2015 alone amounted to an estimated 1,309 tonnes CO_2e for participating ministry work units compared with 2014.

Managed Print Services

Full deployment of managed print services was implemented in 2015: reducing the fleet of 7,400 printers and other devices to 3,300 energy-efficient multi-function devices (MFDs); and introducing Pull-Print technology whereby jobs do not print until the user arrives at the MFD. This resulted in a nearly 25 percent reduction in print volumes, and was recognised as the recipient of an MTICS SAIL Award (Sustainability: Action, Innovation and Leadership).

Infrastructure Initiatives

MTICS managed two key infrastructure investment initiatives that resulted in the most significant reduction in carbon emissions in 2015; the Virtualization and Mitigation Project and the Routine Capital Program.

Virtualization and Migration Project (VAMP): VAMP is a program of the Hosting Administrators Office, Hosting Delivery. The program is transforming and consolidating over 2,500 servers and related data systems to modern computing platforms in two data centres in Kamloops and Calgary, resulting in significant power and space savings. The program accelerated the reduction and virtualisation of servers that has been taking place since 2010. Individual servers are moved into larger, newer, and more energy-efficient servers that can host multiple systems. Results include:

- 72 percent of all servers were virtualised by end of 2015
- The closure of four data centres in 2015, shedding leased space and eliminating the additional energy demand for cooling systems and electricity

Additional sites are scheduled for closure in 2016, including remote locations requiring carbon-intensive travel for monitoring, maintenance and other servicing visits. These systems upgrades serve both provincial government as well as the broader public sector. In fact, some data centre demand is increasing because more BPS client systems are being brought on board, thereby transitioning those BPS entities away from energy inefficient server and data systems similar to those provincial government is shutting down. This represents an electricity demand in 2015 approximately four million kilowatt-hours less than 2014, on top of similar improvements the preceding year (and with more on the way).

Fleet Vehicles

Each year the Province undertakes a rigorous vehicle assessment exercise to determine which vehicles should be replaced. Through this process, ministries with vehicles identified as having a high-priority replacement need are allocated capital to purchase new vehicles. Generally, vehicles being replaced are ~10 years old, and any replacements of such vehicles would benefit from the improved fuel economy of new models available as regulated in the market.

While there is no preferential bias to specifically purchase hybrid vehicles over conventional gasoline-based alternatives - as a general policy, government vehicle replacements are selected based on a triple bottom line business case analysis. Cost premiums inherent with hybrid and electric vehicles as well as associated operating cost and greenhouse gas emission reductions are weighed against alternatives when vehicle replacements are considered. Recent improvements in the efficiency of conventional gasoline-based vehicles have tempered the business case for the purchase of hybrid vehicles over conventional alternatives. Hybrid vehicles purchased during the initial wave of hybrid vehicle availability in 2006 have not yet to be flagged as priority replacement candidates.

Since fiscal year (FY) 2011/12 total fleet inventory has risen by ~12 percent, or from ~7,700 units to ~8,600 units in FY 2014/15, but then dropped to ~8,300 units in FY 2015/16. This represents an overall rise of ~eight percent.

However, in FY 2011/12 the provincial government fleet comprised 3,726 regular vehicles (cars, SUVs, trucks, and vans) whereas the FY 2015/16 figure is 3,397. This represents a nine percent reduction in the provincial government road fleet.